

SYCS/SEM III/REG/PRINCIPLES OF OPERATING SYSTEMS

Time: 2½ hrs.

Marks:75

Note:

1. All questions are compulsory with internal choice.
2. Draw neat diagrams wherever necessary.
3. Figures to the right indicate full marks.

Q.1 Answer the following (Any four)

(20)

- (a) Write a short note on various Multithreading model.
- (b) What is Operating System? Explain the features of OS.
- (c) Explain IPC in detail.
- (d) Briefly explain Kernel-level threads. What are the pros and cons of Kernel-level thread?
- (e) What is System call? Explain the different types of System calls.
- (f) Write a short note on Time sharing Operating System.

Q.2 Answer the following (Any four)

(20)

- (a) What is a deadlock? State necessary and sufficient conditions for the same.
- (b) Write a short note on Dining Philosopher Problem.
- (c) What is Race Condition? What are the types of race condition?
- (d) Explain Semaphore in detail.
- (e) List and explain different process scheduling criterion.
- (f) Draw Gantt chart for SJF by considering the following table and find average waiting time:

Process	CPU Burst Time	Arrival Time
P1	6	0
P2	8	0
P3	7	0
P4	3	0

Q.3 Answer the following (Any four)

(20)

- (a) What is file? Explain different attributes of a file.
- (b) Briefly explain the concept of Swapping.
- (c) Write a short note on Disk Scheduling. Explain any one with suitable example.
- (d) Write a short note on Free-Space Management.
- (e) What is Memory Management Unit? Explain the roles of MMU.
- (f) Explain File-System Implementation in detail.

Q.4 Answer the following (Any five)

(15)

- (a) Explain the different types of files in OS.
- (b) What is Thread? What is the need of thread?
- (c) Explain the different strategies for handling Deadlock.
- (d) Write a short note on Sleeping barber problem.
- (e) Explain demand paging in detail.
- (f) Write a short note on disk structure.

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